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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,633	11/05/2003	Seo-Young Choi	6161.0110.US	5366

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VIENNA, VA 22182

EXAMINER

HINES, ANNE M

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/700,633	CHOI, SEO-YOUNG	
	<b>Examiner</b>	<b>Art Unit</b>	
	Anne M. Hines	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,9-11,15-18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11,15-18 and 20 is/are allowed.
- 6) ☒ Claim(s) 1,3-6 and 10 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 10, 2006 has been entered.

Claims 1, 3-6, 9-11, 15-18, and 20 are pending in the instant application.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Juestel et al. (US 2002/0113552).

Regarding claim 1, Juestel teaches a plasma display panel comprising a fluorescent layer (Fig. 1,9) that includes a red phosphor pattern (Page 1, Paragraph [0003]), a green phosphor pattern (Page 1, Paragraph [0003]), and a blue phosphor pattern (Page 1, Paragraph [0003]), the red phosphor pattern containing  $Y(V,P)O_4:Eu$  and  $(Y,Gd)BO_3:Eu$  (Page 2, Paragraphs [0023]-[0024]). Juestel also teaches wherein

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the red phosphor pattern contains  $Y(V,P)O_4:Eu$  and  $(Y,Gd)BO_3:Eu$  of "up to 100% of  $Y(V,P)O_4:Eu$ " or "up to 100% of  $(Y,Gd)BO_3:Eu$ " (Page 3, Paragraph [0041]); this includes the required 20-80% by weight of  $Y(V,P)O_4:Eu$ . And, Juestel teaches "the use of two phosphors which emit the same color in one and the same phosphor layer makes it possible to reduce or mutually compensate the undesirable properties of the phosphors" (Page 1, Paragraph [0010]). Juestel fails to teach wherein the red color purity ranges from 0.657 to 0.670 for an x chromaticity coordinate value and from 0.322 to 0.332 for a y chromaticity coordinate value, as in claim 1. However, the chromaticity values for  $Y(V,P)O_4:Eu$  are:  $x=0.662$ ,  $y=0.328$ ; this is shown in Table 3. The chromaticity values for  $(Y,Gd)BO_3:Eu$  are:  $x=0.641$ ,  $y=0.356$ ; this property is disclosed by the Kasei-Optonix website (of record). Since the properties of the red phosphor pattern depend on the quantity of each phosphor in the layer (Fig. 3, Table 5) it would be obvious to one of ordinary skill in the art to modify the percentages of  $Y(V,P)O_4:Eu$  and  $(Y,Gd)BO_3:Eu$  in the phosphor layer of Juestel to have the chromaticity coordinates specified in claim 1.

Regarding claim 3, Juestel further discloses wherein the amount of  $Y(V,P)O_4:Eu$  is in the range of 50-80% by weight based on the total weight of  $Y(V,P)O_4:Eu$  and  $(Y,Gd)BO_3:Eu$  (Page 3, Paragraph [0041]).

Claims 4-6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Juestel et al. (US 2002/0113552) in view of Sisneros (US 3631284).

Regarding claims 4 and 10, Juestel teaches a fluorescent layer that includes a red phosphor pattern (Page 1, Paragraph [0003]), a green phosphor pattern (Page 1, Paragraph [0003]), and a blue phosphor pattern (Page 1, Paragraph [0003]), wherein the plasma display panel is without a color-compensating filter (Juestel does not disclose a color-compensating filter), the red phosphor pattern contains  $Y(V,P)O_4:Eu$  and  $(Y,Gd)BO_3:Eu$  (Page 2, Paragraphs [0023]-[0024]). Juestel teaches wherein the red phosphor pattern contains  $Y(V,P)O_4:Eu$  and  $(Y,Gd)BO_3:Eu$  of "up to 100% of  $Y(V,P)O_4:Eu$ " or "up to 100% of  $(Y,Gd)BO_3:Eu$ " (Page 3, Paragraph [0041]). Juestel also teaches "the use of two phosphors which emit the same color in one and the same phosphor layer makes it possible to reduce or mutually compensate the undesirable properties of the phosphors" (Page 1, Paragraph [0010]). Juestel fails to teach wherein the red light afterglow decay time is 4.0-8.8 ms, as in claim 4. Juestel fails to teach wherein the red light afterglow decay time is 4.0-8.0 ms, as in claim 10. Juestel also fails to teach wherein x chromaticity values for red are 0.663 to 0.670 and the y chromaticity values for red are 0.322 to 0.332, as required by claim 4. However, the afterglow decay value for  $Y(V,P)O_4:Eu$  is 3.5 ms; this is shown in Table 3. The afterglow decay value for  $(Y,Gd)BO_3:Eu$  is 11 ms; this property is disclosed by the Kasei-Optonix website (of record). Since the properties of the red phosphor pattern depend on the quantity of each phosphor in the layer it would be obvious to one of ordinary skill in the art to modify the percentages of  $Y(V,P)O_4:Eu$  and  $(Y,Gd)BO_3:Eu$  in the phosphor layer of Juestel to get the afterglow decay values specified in claim 4. Sisneros provides evidence that  $Y(V,P)O_4:Eu$  phosphors have chromaticity values of  $x=0.67$  and  $y=0.33$

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(Column 3, see table). Since the properties of the red phosphor pattern depend on the quantity of each phosphor in the layer (Fig. 3, Table 5) it would be obvious to one of ordinary skill in the art to modify the percentages of  $\text{Y(V,P)O}_4\text{:Eu}$  and  $\text{(Y,Gd)BO}_3\text{:Eu}$  in the phosphor layer of Juestel to have the chromaticity coordinates specified in claim 4.

Regarding claim 5, Juestel further discloses wherein the amount of  $\text{Y(V,P)O}_4\text{:Eu}$  is in the range of 20-80% by weight based on the total weight of  $\text{Y(V,P)O}_4\text{:Eu}$  and  $\text{(Y,Gd)BO}_3\text{:Eu}$  (Page 3, Paragraph [0041]).

Regarding claim 6, Juestel further discloses wherein the amount of  $\text{Y(V,P)O}_4\text{:Eu}$  is in the range of 50-80% by weight based on the total weight of  $\text{Y(V,P)O}_4\text{:Eu}$  and  $\text{(Y,Gd)BO}_3\text{:Eu}$  (Page 3, Paragraph [0041]).

### ***Allowable Subject Matter***

Claims 11, 15-18, and 20 are allowed.

Regarding independent claim 11, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 11, and specifically comprising the limitation wherein the combined red color purity ranges from 0.657 to 0.670 for a chromaticity coordinate value x and from 0.322 to 0.327 for a chromaticity value y.

Regarding claims 15 and 20, claims 15 and 20 are allowable for the reasons given in claim 11 because of their dependency status from claim 11.

Regarding independent claim 16, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 16, and

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specifically comprising the limitation wherein the combined red color purity ranges from 0.660 to 0.670 for a chromaticity coordinate value  $x$  and from 0.322 to 0.327 for a chromaticity value  $y$ .

Regarding claims 17-18, claims 17-18 are allowable for the reasons given in claim 16 because of their dependency status from claim 16.

Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne M. Hines whose telephone number is (571) 272-2285. The examiner can normally be reached on Monday through Friday from 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anne M Hines  
Patent Examiner  
Art Unit 2879

*AmH*  
*5/8/06*

*MS*  
**MARICELI SANTIAGO**  
**PRIMARY EXAMINER**